policies (IARP), WLAN selection policies (WLANSP), Inter-system mobility polices (ISMP) and inter-system routing policies (ISRP). The UE executes selected rules, called active rules, from the set of rules defined for the policies present in the MO. The selection policies direct the traffic via a single selected radio access only, whereas the routing policies utilize routing via multiple accesses simultaneously.

[0074] In legacy 3GPP technologies, inter-Radio Access Technology (RAT) handover procedures prevent two radio accesses from being available at a same time for the PDN connection. Instead, from the available RATs, the most feasible one is selected at the time to be the serving RAT for a UE. Therefore, multiple radio access networks (RANs) that can serve simultaneously need to be from different technologies, such as a first one using 3GPP technology and a second one using a non-3GPP technology. The most common combination for multiple serving radio access networks of a UE is 3GPP and Wi-Fi for example.

[0075] A problem with the current 3GPP system specification and MPTCP is that the current 3GPP system specification does not support the allocation of multiple IP addresses for a single Access Point Name (APN) over more than one access networks. For example, for APN=Internet, representing the internet as the external network, the current 3GPP system specification does not support the allocation of multiple IP addresses for the APN over more than one access networks. If the UE requests a new packet Data Network (PDN) connection to an APN that is already active for the UE over another access network, the network rejects this additional PDN connection request.

[0076] In the current 3GPP system specification, without MPTCP, there are reasons why a request for a new packet Data Network (PDN) connection to an APN, that is already active for the UE over another access network, should be rejected by the network. However, these reasons are not valid for a UE attempting to use Multipath TCP (MPTCP), because with multipath TCP there is a legitimate need for two different IP addresses. For this reason, the different IP addresses are needed also when pointing to the same APN over different access networks. Thus, without the invention described herein there would be a hinder when trying to use MPTCP on a 3GPP system.

[0077] As described herein, a feature may comprise the UE making the network aware of the reason why the UE is requesting an additional PDN connection(s) to an APN over different access networks. Furthermore, from the point of view of the available benefits from the Multipath TCP (MPTCP), the common APN over different access networks, although representing the same type of Packet Data Network (e.g. internet), may be mapped to two different PDN Gateways (P-GW) for maximum route redundancy. By mapping the APN to two different P-GWs the Mobile Network Operator can also benefit in its core network interfaces from the UE's capability to apply MPTCP. The current 3GPP specification only allows parallel active PDN connections (over one access only) to a same APN to be allocated to the same P-GW. Features as described herein propose that the current 3GPP system specification be changed to allow the use of more than one P-GW for the PDN connections of the UE to the same APN.

[0078] Currently, a UE does not get network guidance for the radio access selection for the use of MPTCP. For an intended use of MPTCP between a UE and a server, such policies and rules are not present. As proposed herein, such policies and rules may be provided to thereby allow the UE to make access selections that are favorable for MPTCP, or which prevent access selections that are not favorable for MPTCP, or could become disablers for the MPTCP opportunity. Thus, a feature as described herein is to provide the UE with network guidance for the radio access selection for the use of MPTCP.

[0079] As described earlier, the scenario for MPTCP necessitates offering to the UE two (or more) Internet Protocol (IP) addresses for one type of traffic, such as over different access networks for example. The conventional approach for access network selection policies in the 3GPP specification is to always prefer only one access for any given service (APN) or IP flow. Consequently, the operating logic with the current policies is to steer any specific traffic to only one access network; either the cellular access or one of the available non-3GPP access networks. Such logic, to steer any specific traffic to only one access network, is contrary to MPTCP using multiple paths (sub-paths).

[0080] Features as described herein may be used to change the 3GPP system behavior with respect to the management and control of the PDN connections and selection of P-GWs. This may involve, primarily, the session management sublayer of the Non-Access Stratum (NAS) protocol and procedures between UE and the network.

[0081] Because a UE is assumed to be able to attach only to one WLAN Access Point (SSID) at any given time, it is assumed that the two access networks involved in any UE's MPTCP session are, by default, one non-3GPP (WLAN) access and one 3GPP radio access. FIGS. **1-2** illustrate one option. In this NSWO option, one of the IP addresses has been assigned to the UE by the P-GW in the Mobile Network Operator's (MNO's) core network. The other IP address is assigned by the WLAN network independently. In this option the MNO's core network is not aware of the IP connectivity over the WLAN access. However, even for this option the Mobile Network Operator can offer new guidance and policies via ANDSF to support MPTCP use by the UE.

[0082] FIGS. **4** and **5** illustrate a second option. Features as described herein apply to the scenarios where the entire MPTCP session is conducted over one access network. In this second option, EPC routed, both IP addresses are assigned from the MNO's IP address space in the PDN Gateways (P-GW). This option assumes an interworking scenario between the WLAN access and the Evolved Packet Core (EPC), such as via S2a, S2b or S2c interface between the two for example. To ensure maximum path redundancy, the two addresses, although having the same APN, may be assigned by two different P-GWs. In such a deployment where the network is designed to offer multipath support, it may be assumed that the P-GW allocation is done accordingly. To enable this second option, the following novel capabilities may be added into the 3GPP system specification and hence implemented to the apparatus:

[0083] The 3GPP system specification may be changed to allow the creation of two (or more) PDN connections to a same APN over two (or more) access networks.

[0084] The 3GPP system specification may be changed to enable the UE to explicitly indicate, such as in the PDN connection request for example, that the requested additional PDN connection is for multipath TCP (MPTCP) use. This explicit indication in the PDN creation may then allow the network to make an exception in the PDN connection establishment. Thus,